

The 60 rotations of 6 elements
(excludes mirrors (x2) & cyclics (x6))

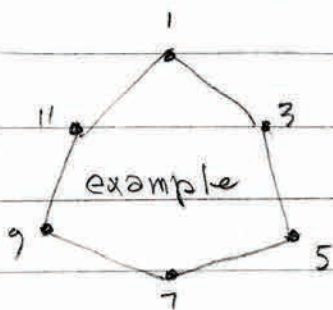
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1 3 5	7 9 11 x	1 3 11	5 7 9	1 5 11	3 7 9	1 9 11	3 5 7 x
	7 11 9 x		5 9 7		3 9 7		3 7 5 x
	9 7 11		7 5 9		7 3 9		5 3 7 x
	9 11 7 x		7 9 5		7 9 3		5 7 3 x
	11 7 9		9 5 7 x		9 3 7 x		7 3 5 x
	11 9 7 x		9 7 5 x		9 7 3 x		7 5 3 x

1 3 7	5 9 11 x	1 5 7	3 9 11 x	1 7 9	3 5 11
	5 11 9 x		3 11 9 x		3 11 5
	9 5 11		9 3 11		5 3 11
	9 11 5 x		9 11 3 x		5 11 3
	11 5 9		11 3 9		11 3 5 x
	11 9 5 x		11 9 3 x		11 5 3 x

How many ways to get from the 1357 tetrad to its opposite? Look for some sequence of 1357 together, (or 911 continuous). 30 ways, indicated (x). Half of all ways.

1 3 9	5 7 11	1 5 9	3 7 11	1 7 11	3 5 9
	5 11 7		3 11 7		3 9 5
	7 5 11		7 3 11		5 3 9
	7 11 5		7 11 3		5 9 3
	11 5 7 x		11 3 7 x		9 3 5 x
	11 7 5 x		11 7 3 x		9 5 3 x



Partitioned Triadic Cross-Sets

In the (3,6) 1,3,5,7,9,11 Eikosony

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Read first Partitioned Cross-Sets of the Hebdomekontany, 1989 by E.M. Wilson, pages 4 and 5. Then look at Fig 4 of D'Alessandro, 1989, XH VII, E.M. Wilson. Now, then -

In the (3,6) Eikosony the (1,3) Triany forms a partitioned cross-set with the (2,3) triany. There are 20 combinations by which this partitioning may occur. Please note; the (2,3) triany carries a concealed sub-harmonic triad. Example

($\bar{5}$ $\bar{3}$ T) is concealed in

x	(1,3	1,5	3,5)	} Eikosony terms. (Tonic is 1,3,5)
7	1,3,7	1,5,7	3,5,7	
9	1,3,9	1,5,9	3,5,9	
11	1,3,11	1,5,11	3,5,11	

And we see above the result is a set of 9 Eikosony terms. Interestingly, each of these ties back to the tonic term 1,3,5! by virtue of 2 shared elements. When 1,3,5 is taken as 1/1 the cross-set appears in the following quasi-diamondic form;

x	$\bar{5}$	$\bar{3}$	T	} diamondic terms (Tonic is 1/1)
7	7/5	7/3	7/1	
9	9/5	9/3	9/1	
11	11/5	11/3	11/1	

Again - there are 20 permutations of this beautiful geometry, imbedded in the Eikosony. These are the 20 bonding-sites between Eikosony & Diamond - as sets of 10 terms. Also please see fig 15 of D'Alessandro.

A complete pentadic cross-set can be made as shown;

x	2	3	5	7	11
2	2.2	2.3	2.5	2.7	2.11
3	3.2	3.3	3.5	3.7	3.11
5	5.2	5.3	5.5	5.7	5.11
7	7.2	7.3	7.5	7.7	7.11
11	11.2	11.3	11.5	11.7	11.11

Scarcely concealed within the cross-set is the 2-out-of-5 combination-product set of the master set 2, 3, 5, 7, 11. This can be formatted as shown: ↴

Ref. 3-out-of-5 ↴ also of interest

$\binom{2}{5}$	<u>2</u>	<u>3</u>	<u>5</u>	<u>7</u>	<u>11</u>	$\times \overline{2,3,5,7,11} =$	$\binom{3}{5}$	<u>2</u>	<u>3</u>	<u>5</u>	<u>7</u>	<u>11</u>		
	2	3												
	2		5								5	7	11	
	2			7							3		7	11
	2				11						3	5		7
		3	5											
		3		7										
		3			11									
			5	7										
			5		11									
			7	11										

(2-out-of-5)	(3-out-of-5)	(2-out-of-5)
<u>2 3 5 7 11</u>	<u>2 3 5 7 11</u>	<u>$\bar{2} \bar{3} \bar{5} \bar{7} \bar{11}$</u>
2 3	2 3 5	$\bar{7} \bar{11}$
2 5	2 3 7	$\bar{5} \bar{11}$
2 7	2 3 11	$\bar{5} \bar{7}$
2 11	2 5 7	$\bar{3} \bar{11}$
3 5	2 5 11	$\bar{3} \bar{7}$
3 7	2 7 11	$\bar{3} \bar{5}$
3 11	3 5 7	$\bar{2} \bar{11}$
5 7	3 5 11	$\bar{2} \bar{7}$
5 11	3 7 11	$\bar{2} \bar{5}$
7 11	5 7 11	$\bar{2} \bar{3}$

This operation shows how the $\binom{3}{5}$ or 3-out-of-5 set can be the subharmonic mirror of the $\binom{2}{5}$ or 2-out-of-5 set. Likewise, to fill out the picture;

(2-out-of-5)	(3-out-of-5)	
<u>2 3 5 7 11</u> harmonic set	<u>$\bar{2} \bar{3} \bar{5} \bar{7} \bar{11}$</u> subharmonic set	
2 3	$\bar{5} \bar{7} \bar{11}$	} $\times (\bar{2}, \bar{3}, \bar{5}, \bar{7}, \bar{11}) =$
2 5	$\bar{3} \bar{7} \bar{11}$	
2 7	$\bar{3} \bar{5} \bar{11}$	
2 11	$\bar{3} \bar{5} \bar{7}$	
3 5	$\bar{2} \bar{7} \bar{11}$	
3 7	$\bar{2} \bar{5} \bar{11}$	
3 11	$\bar{2} \bar{5} \bar{7}$	
5 7	$\bar{2} \bar{3} \bar{11}$	
5 11	$\bar{2} \bar{3} \bar{7}$	
7 11	$\bar{2} \bar{3} \bar{5}$	

- $\binom{0}{5}$ $\binom{1}{5}$ $\binom{2}{5}$ $\binom{3}{5}$ $\binom{4}{5}$ $\binom{5}{5}$
 1 5 10 10 5 1

Each harmonic tetrad connects with 6 subharmonic tetrads with 2 common tones:

1	3	5	7							Tetrad harmonic
---	---	---	---	--	--	--	--	--	--	-----------------

$\bar{3}$	$\bar{7}$				$\bar{9}$	$\bar{11}$				
-----------	-----------	--	--	--	-----------	------------	--	--	--	--

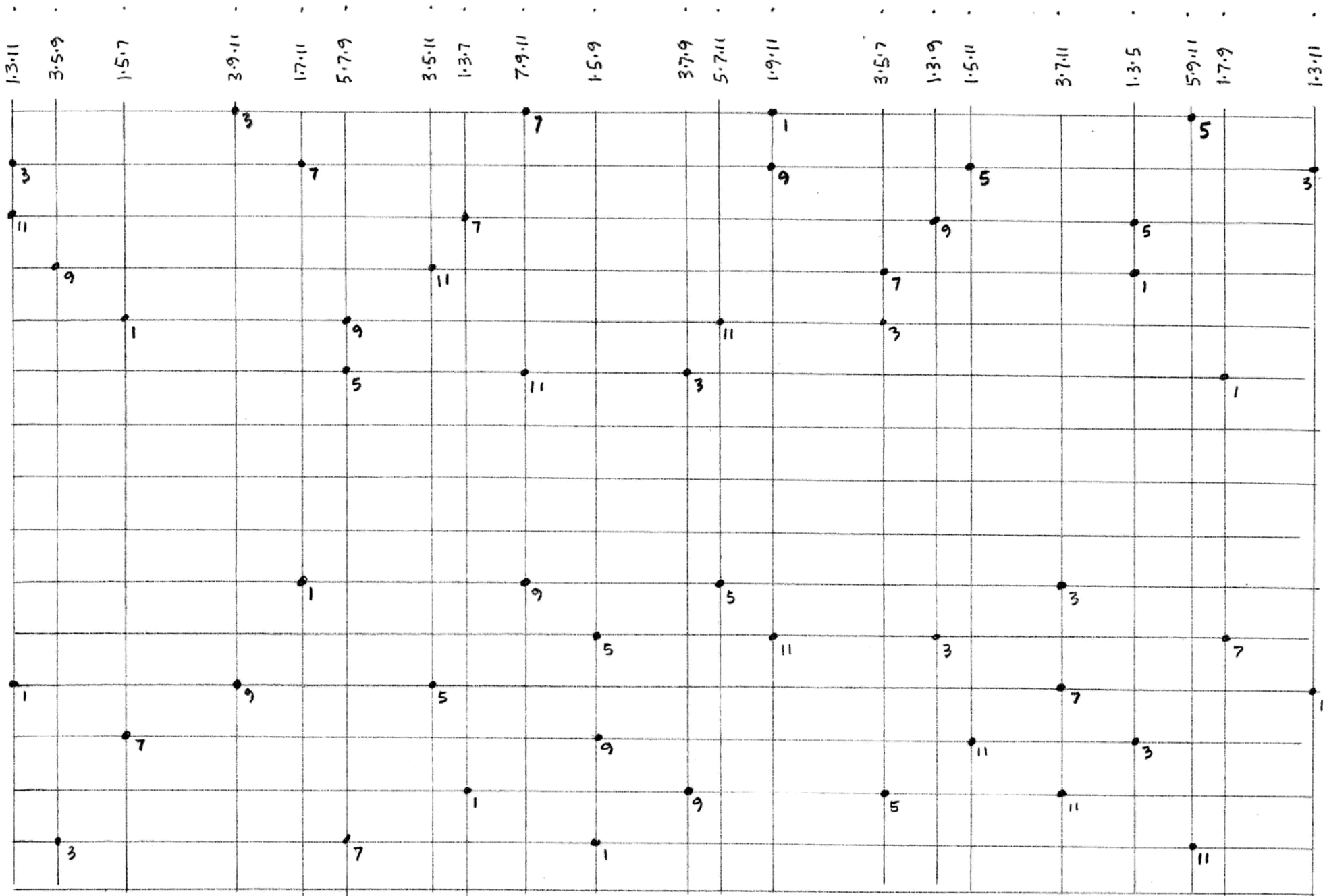
$\bar{5}$		$\bar{7}$			$\bar{9}$	$\bar{11}$				
-----------	--	-----------	--	--	-----------	------------	--	--	--	--

$\bar{7}$			$\bar{7}$		$\bar{9}$	$\bar{11}$				
-----------	--	--	-----------	--	-----------	------------	--	--	--	--

	$\bar{5}$	$\bar{3}$			$\bar{9}$	$\bar{11}$				
--	-----------	-----------	--	--	-----------	------------	--	--	--	--

	$\bar{7}$		$\bar{3}$		$\bar{9}$	$\bar{11}$				
--	-----------	--	-----------	--	-----------	------------	--	--	--	--

		$\bar{7}$	$\bar{5}$		$\bar{9}$	$\bar{11}$				
--	--	-----------	-----------	--	-----------	------------	--	--	--	--



2 cycles of Tetrads © E.W 1981

Complementary Dekagrams of the 1.3.5.7.9.11 Eikosagram
 Aspect: $11\frac{3}{5}$ - Ear-training Exercise

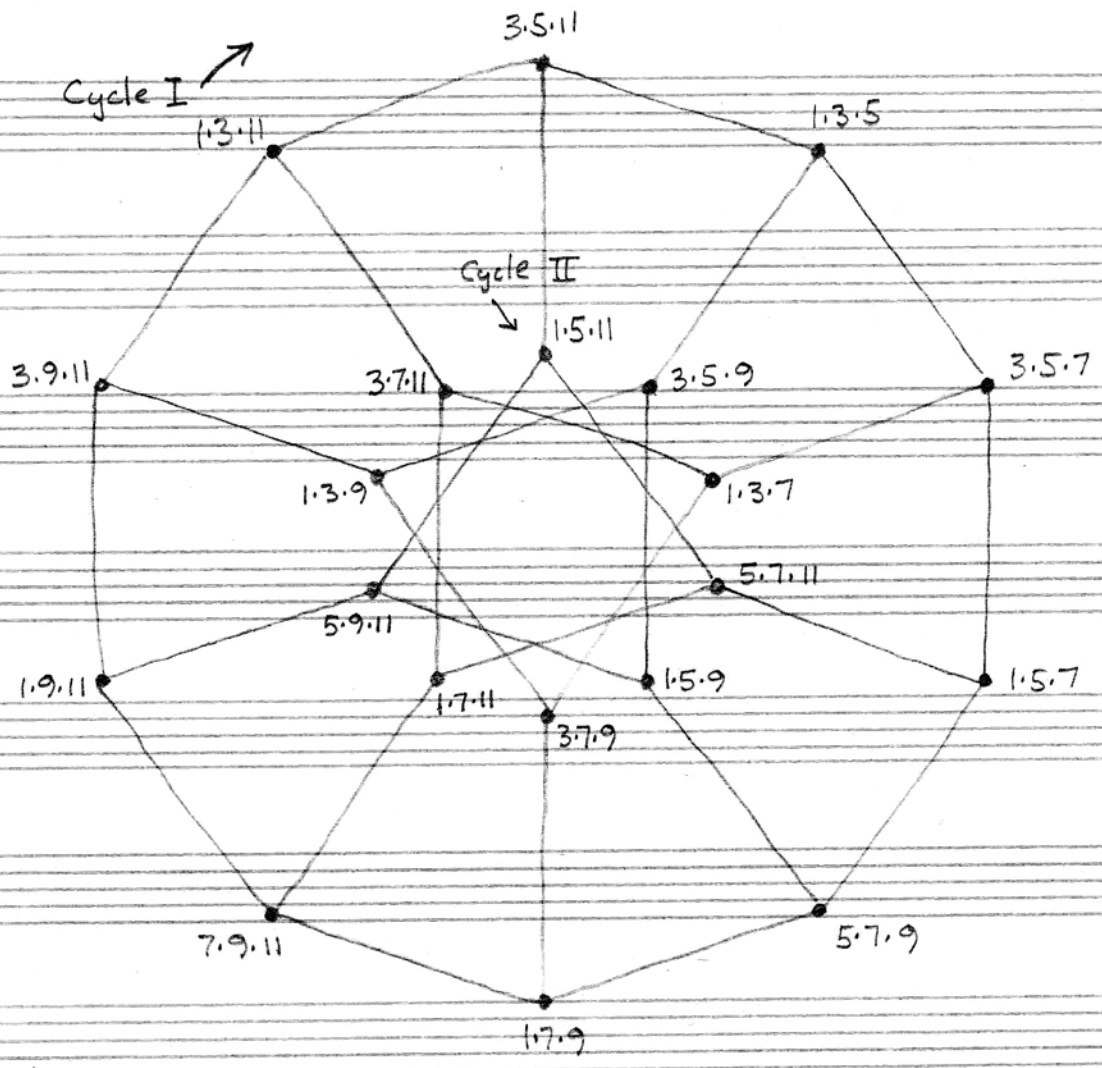
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Cycle I

	1:5	11:1	1:7	3:1	1:9	5:1	1:11	7:1	1:3	9:1
Tuning	1.3.11 264	3.5.11 330	1.3.5 480	3.5.7 420	1.5.7 280	5.7.9 315	1.7.9 252	7.9.11 346.5	1.9.11 396	3.9.11 297

Cycle II

	1:7	5:1	1:3	11:1	1:9	7:1	1:5	3:1	1:11	9:1
	1.5.11 440	5.7.11 385	1.7.11 308	3.7.11 462	1.3.7 336	3.7.9 378	1.3.9 432	3.5.9 270	1.5.9 360	5.9.11 495



Complementary Dekagrams 1.3.5.7.9.11 Eikosagram

1st Version

Handwritten musical notation for the first version, measures 1-5. It consists of two staves, I and II, with notes and numerical labels below them.

Measure 1	Measure 2	Measure 3	Measure 4	Measure 5
Staff I: \circ \circ $\times b \circ$ $b \circ$ $b \circ$ $b \circ$ $b \circ$ \circ \circ \circ \circ \circ $\times b \circ$ $b \circ$ $b \circ$	Staff I: \circ \circ \circ \circ $\times b \circ$ $b \circ$ $b \circ$ $b \circ$ $b \circ$ \circ \circ \circ \circ \circ \circ	Staff II: \circ \circ \circ \circ \circ		
Labels: 1.3.11 / 5, 3.5.11 / 7, 1.3.5 / 11	Labels: 3.5.7 / 3, 1.5.7 / 1, 5.7.9 / 9	Labels: 1.7.9 / 11, 7.9.11 / 7, 1.9.11 / 7	Labels: 3.9.11 / 9, 1.3.11 / 1, 3.5.11 / 5	Labels: 1.3.5 / 7, 3.5.7 / 7, 1.5.7 / 3
Staff II Labels: 1.5.11 / 3	Staff II Labels: 5.7.11 / 11	Staff II Labels: 1.7.11 / 9	Staff II Labels: 3.7.11 / 7	Staff II Labels: 1.3.7 / 5

Handwritten musical notation for the first version, measures 6-10. It consists of two staves, I and II, with notes and numerical labels below them.

Measure 6	Measure 7	Measure 8	Measure 9	Measure 10
Staff I: $b \circ$ $b \circ$ \circ \circ \circ \circ \circ $\times b \circ$ $b \circ$ $b \circ$ $b \circ$ $b \circ$ \circ \circ \circ	Staff I: \circ \circ \circ \circ $\times b \circ$ $b \circ$ $b \circ$ $b \circ$ $b \circ$ \circ \circ \circ \circ \circ \circ	Staff II: $b \circ$ $\times b \circ$ $\times \circ$ $\times \circ$ \circ		
Labels: 5.7.9 / 5, 1.7.9 / 1, 7.9.11 / 11	Labels: 1.9.11 / 3, 3.9.11 / 7, 1.3.11 / 9	Labels: 3.5.11 / 11, 1.3.5 / 1, 3.5.7 / 7	Labels: 1.5.7 / 9, 5.7.9 / 7, 1.7.9 / 5	Labels: 7.9.11 / 7, 1.9.11 / 1, 3.9.11 / 3
Staff II Labels: 3.7.9 / 3	Staff II Labels: 1.3.9 / 11	Staff II Labels: 3.5.9 / 9	Staff II Labels: 1.5.9 / 7	Staff II Labels: 5.9.11 / 5

2nd Version

Handwritten musical notation for the second version, measures 11-15. It consists of two staves, I and II, with notes and numerical labels below them.

Measure 11	Measure 12	Measure 13	Measure 14	Measure 15
Staff I: \circ \circ $\times b \circ$ $b \circ$ $b \circ$	Staff I: \circ \circ $\times b \circ$ $b \circ$ $b \circ$	Staff II: $b \circ$ $b \circ$ $b \circ$ \circ \circ \circ $\times \circ$ $\times \circ$ $\times b \circ$ $b \circ$ $b \circ$ $b \circ$ $\times b \circ$ \circ \circ		
Labels: 1.3.11 / 7	Labels: 3.5.11 / 3	Labels: 1.3.5 / 9	Labels: 3.5.7 / 5	Labels: 1.5.7 / 11
Staff II Labels: 1.3.7 / 11, 3.7.11 / 7, 1.7.11 / 3	Staff II Labels: 5.7.11 / 7, 1.5.11 / 1, 5.9.11 / 9	Staff II Labels: 1.5.9 / 3, 3.5.9 / 7, 1.3.9 / 5	Staff II Labels: 3.7.9 / 9, 1.3.7 / 1, 3.7.11 / 11	Staff II Labels: 1.7.11 / 5, 5.7.11 / 7, 1.5.11 / 7

Handwritten musical notation for the second version, measures 16-20. It consists of two staves, I and II, with notes and numerical labels below them.

Measure 16	Measure 17	Measure 18	Measure 19	Measure 20
Staff I: $b \circ$ $b \circ$ \circ \circ \circ	Staff I: $b \circ$ $b \circ$ \circ \circ \circ	Staff II: \circ $\times \circ$ $\times \circ$ $\times b \circ$ $b \circ$ $b \circ$ $\times b \circ$ \circ \circ \circ \circ $\times \circ$ $\times \circ$ $\times b \circ$ $b \circ$		
Labels: 5.7.9 / 7	Labels: 1.7.9 / 3	Labels: 7.9.11 / 9	Labels: 1.9.11 / 5	Labels: 3.9.11 / 11
Staff II Labels: 5.9.11 / 11, 1.5.9 / 1, 3.5.9 / 3	Staff II Labels: 1.3.9 / 7, 3.7.9 / 7, 1.3.7 / 9	Staff II Labels: 3.7.11 / 3, 1.7.11 / 1, 5.7.11 / 5	Staff II Labels: 1.5.11 / 9, 5.9.11 / 7, 1.5.9 / 11	Staff II Labels: 3.5.9 / 5, 1.3.9 / 1, 3.7.9 / 7

Tree Toad

12 Variation

11

13

14

15

Handwritten musical score for Variation 12, consisting of two systems of staves (I and II) with notes and rests, and a row of numbers below each system.

System 1:

- Staff I: Notes at 11:14, 10:11, 11:18, 12:11, 22:15. Circled numbers: 352, 9, 15, 7, 7.
- Staff II: Notes at 11:14, 12:11, 14:11, 11:9, 22:15, 11:8, 14:11, 11:9, 22:15, 11:8, 12:11, 14:11, 22:15. Circled numbers: 1, 11, 3, 9, 7, 7, 15, 11, 1, 5, 11, 7, 11, 3.
- Row of numbers: 16, 17, 18, 19, 20.

System 2:

- Staff I: Notes at 14:11, 16:11, 18:11, 12:11, 22:15. Circled numbers: 9, 3, 15, 7, 11.
- Staff II: Notes at 12:11, 14:11, 11:9, 22:15, 11:8, 14:11, 11:9, 22:15, 11:8, 14:11, 11:9. Circled numbers: 11, 11, 3, 9, 15, 11, 7, 15, 11, 7, 11, 15, 7, 11, 11, 3, 9, 15.

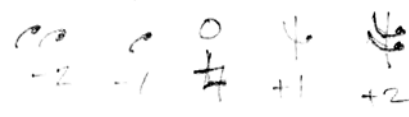
Scale:
Keyboard series:

1.	10.	19.	6.	15.	2.	11.	20.	7.	16.	3.	
E+	E+	A+	D+	G+	C+	F+	B+	E+	A+	D+	
3.9.15	1.9.15	1.3.15	7.9.15	3.7.15	1.7.15	(1.7.15) 3	9.11.15	3.11.15	1.11.15	1.3.9	
pitch	270	360	480	315	420	280	373.33..	495	330	440	288

12.	21.	8.	17.	4.	13.	9.	18.	5.	14.		
X+	B.	E.	A.	D	G	F	B	E	A		
7.11.15	3.7.9	1.7.9	1.3.7	(3.9.11)	3.9.11	1.9.11	1.3.11	7.9.11	3.7.11	1.7.11	
Pitch	385	504	336	448	297	396	264	352	462	308	410.66''

Tree Toad

melodic



(Fixed)

Handwritten musical notation on a single staff. It begins with a treble clef and a key signature of one sharp (F#). The notes are: 0, 1, 2, 3, 4, 5. There are some handwritten markings above the first few notes.

Handwritten musical notation on a single staff. It begins with a treble clef and a key signature of one sharp (F#). The notes are: 1, 10, 19. There are some handwritten markings above the first few notes.

Handwritten musical notation on a single staff. It begins with a treble clef and a key signature of one sharp (F#). The notes are: 1, 2, 3, 4, 5.

Handwritten musical notation for two staves, labeled I and II. Staff I contains notes with various accidentals and fingerings. Staff II contains notes with various accidentals and fingerings. The notes are: 1, 2, 3, 4, 5.

Handwritten musical notation for two staves, labeled I and II. Staff I contains notes with various accidentals and fingerings. Staff II contains notes with various accidentals and fingerings. The notes are: 6, 7, 8, 9, 10.

Handwritten musical notation for two staves, labeled I and II. Staff I contains notes with various accidentals and fingerings. Staff II contains notes with various accidentals and fingerings. The notes are: 11, 12, 13, 14, 15. The notation ends with "to beginning".